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ABSTRACT

This paper discusses the development of effective staff development programs to support use of computer technology in the elementary school classroom. Elements discussed include strategies to reach reluctant technology users, and suggestions for getting started with such a program. The paper also presents the findings of a survey study exploring fourth-grade teachers' knowledge in using computer technology in general as well as using computers in the classroom to support the English Language Arts standards. Participating in the study were 11 fourth-grade teachers in a public school in Orange County, New York. Teachers completed a 10-item survey assessing their use of technology, the availability of technology, and knowledge of the English Language Arts standards. Responses suggested that teachers with the most experience teaching were the least likely to use computers regularly and were more likely to feel unprepared to use computers. Relatively new teachers had more confidence in their ability to use technology to support the curriculum as well as to support the English Language Arts standards. Both experienced and less experienced teachers agreed that their district provided inadequate technology training. All teachers were familiar with the English Language Arts standards, and their examples illustrated the use of computers to support these standards. Most teachers recommended ongoing support in the use of computers in the classroom and thought that they were expected to donate too much of their own free time to learning the new tools. (Contains 13 references.) (KB)

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Abstract:

This article explores how knowledgeable fourth grade teachers were in using technology in general as well as using it to support the English Language Arts standards. A survey was given and it was determined that those teachers with more experience were less likely to use the technology than those with less teaching experience. The teachers with less experience were more willing to experiment with the technology and software.

Introduction:

In our highly technological world, the introduction of computers in education is inevitable. Both educators and students embrace technology, specifically computers, in the educational community. However, teachers worldwide are all facing the same problem. Even though they may be gaining more access to computers they are still lacking the knowledge and skill of how to integrate it effectively into the core curriculum as they teach. Another challenge for teachers is how to use this technology along with the English Language Arts standards.

Although teachers participate in the staff development courses to try and acquire the knowledge and skills necessary needed to utilize technology, many of them become so overwhelmed with the wealth of information being thrown at them. With that happening, they have yet to master how to successfully integrate technology to improve student learning. This is not to say that many teachers are not applying what they may have learned. They are probably using the computer in addition to the regular curriculum but they are not using it as a consistent tool to help the students in their learning process. If teachers are expected to implement technology into their curriculum, then they need adequate training to master the appropriate skills. Once teachers are properly trained, then using computers in the classroom can easily be incorporated into their daily planning as well as using it to supplement the ELA standards. Fundamentally, school districts are responsible for proper funding of teacher education in technology. Since there is obviously a lack of teacher training to use the technology, the question is how are teachers going to handle these demands? Have they developed their own curriculum and resources to meet these

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demands or are they not accommodating at all? Perhaps, they have established helpful resources that could benefit their colleagues. On the other hand, the teachers may not have any resources and be using only traditional methods to teach. Either way, in order for technology to be used and effective, schools must provide immense investment in staff learning.

Are You Adequately Prepared or Not?

The introduction of computer technology demands a tremendous amount of physical and organizational restructuring—for administrators, teachers, and students. Schools must determine their educational goals and the ways technology can help and realize such goals. Teachers need high quality professional development and access to on-site technical assistance (Adams & Burns, 1999)

A variety of factors predict whether and how teachers will use technology, including access, training, teaching philosophy, and collaboration with other teachers (Goldman, Cole, and Syer, 1999). The question is how are these factors being addressed in each school district? Often, districts buy hardware, but forget that teachers must have training and technical support in order to integrate the technology into the classroom (Vojtek and Vojtek, 1999). It is hard to promise and undertake effective professional development when teachers go back to their classrooms and don't have a structure that supports it. A report from the National Center for Educational Statistics said that only 20 percent of educators reported feeling very well prepared to integrate educational technology into the classroom (Vojtek and Vojtek, Spring 1999). Hands-on access during staff development for technology, as well as reasonable access to the same technology when teachers return to their classrooms, provides skills to transfer more readily into effective teaching practices and ultimately results in a positive student outcome (Vojtek and Vojtek, 1999). An effective staff development program will encourage the use of technology and may result in a support system for staff members (Boersma, 1995). Adequate support for staff learning of new technologies is critical to the achievement of successful program integration across curriculum areas (McKenzie, 1993). Also, schools have all too often relied upon the individual teacher's good will and dedication to support training programs. If teacher pay were on a high professional level,

that might be a reasonable expectation, but it is time we showed commitment to training by paying for it (McKenzie, 1993).

If a district expects widespread, broad-based but penetrating application of new technologies, literacy and competence can no longer be viewed as a personal teacher option. A teacher for this Age of Information must be literate with regard to both technology and information systems. States and districts should begin to clarifying that expectation in the form of licensing certification and employment requirements tied to reasonable time lines (McKenzie, 1993).

Vital to any comprehensive staff development plan is the process that individual district or staff development units are involved in to align the technology/ information standards with the locally approved content and performance standards and district curriculum. While there are many demonstrations of the content learning that is possible, there is little to no push for large-scale adoption of technology in the core subject areas (Goldman, Cole, Syer, 1999). Making the job of teaching more attractive and more creative, and showing how technology can enliven the process, may be the single most important factor in improving our schools (Vojtek and Vojtek, Spring 1999). Capturing participant curiosity through the use of innovative technologies like telecommunications and multimedia could be what is needed to get the staff excited about incorporating technology throughout the curriculum (Williams, 1993).

Ready or Not: Computers Are Here

Through the years there have been many different teaching philosophies that have been practiced by teachers. They range from the traditional to the cooperative learning methods. The individual teaching philosophy can hinder an educator's ability to incorporate technology into the curriculum. Florence McGinn, a one-time traditionalist teacher, has learned to use technology to tap into her student's experiences. Along with their help she is able to learn from them and use these experiences to cultivate a rich learning environment. Unlike most traditional teachers, McGinn has gotten past her fear that she'll do something in front of the class and it will fail (Trotter, 1999). The teachers who were starting in the

1980's when computers were first being introduced into the classroom were optimistic about its potential but hesitant to use them. Unsure of what to do with the computers they stepped back and let technicians and software developers tell them how to use computers in the classroom (Schrum, 2000). Now, we are in the era of cooperative learning groups and the 21st Century teacher. These teachers are more knowledgeable in computers and its many uses with the curriculum (Gallagher, 1997). It is the job of the individual school districts to determine the grouping of teachers within the district and educate them appropriately for the demands of their district. Depending on the philosophy of their teachers will depend on their willingness to give computers a try. The district also needs to take into consideration that participants have different learning styles. Therefore, they need to create programs that provide options suited to these individual learning styles (McKenzie, 1993).

At its best, technology can facilitate deep exploration and integration of information, high level thinking, and profound engagement by allowing students to design, explore, experiment, access information, and model complex phenomena. Technologies help students gain mastery of content areas and zip at speeds of the fastest Internet connection well beyond and above the standards. Computer technologies are the norm rather than the exception, and they become enablers rather than another subject to be taught in school (Goldman, Cole, Syer, 1999).

Supporting the ELA Standards

As teachers are integrating technology into their ELA curriculum and students are actively engaged in using software the students are creating original projects that strengthen their reading, writing, listening and speaking skills. Jennifer Gareau, a consulting teacher for Standards Implementation & Technology has seen first hand how students are doing projects that are incorporating the technology in with the ELA standards. For example, one group of students is using digital photos they took on a field trip and authoring and illustrating their own books; another group is writing their own cinquain poems, while yet another is writing letters to people in another country in hopes of in turn receiving letters back from their pen-pals. Finally there is a class that has completed a unit on structures, so they have

transformed their written work through laptops and creating a book depicting their unit of study with actual diagrams of their masterpiece structures. Overall teachers are seeing technology as another teaching use in strengthening their students' ELA skills and readily incorporating it into the curriculum. Kids are becoming better readers, writers, listeners, and speakers (Gareau).

We must use technology as one of the many tools available to help student's master defined content and performance standards (Vojtek, Winter 1999). A study conducted by Becker (McKenzie, 1999) showed that teachers with access to at least five classroom computers used them more often for student research and projects than those who did not. This study further proved that with enough focus on effective strategies and adequate investment in professional development, students will learn to read more strategically, write more persuasively and reason more coherently (McKenzie, 1999). Learning in the context of reaching a meaningful outcome means that not only are skills learned, but also they are learned in a context and, therefore, are more likely to be transferred. Districts need to build a network of teachers who have a grasp on technology and its integration and can share it effectively with others (Williams, 1993). We must establish a culture within school districts which establishes continuing learning as a norm for all staff members. We must move toward the kinds of structures and learning teams envisioned by Senge, who sees members of the organization on a quest for change and improvement, continually asking how life can be made better (McKenzie, 1993).

Strategies To Reach Reluctant Technology Users

Schools must pay particular attention to the needs and interest of reluctant technology users. The following strategies should be used as a guideline for reaching the reluctant....

1. Clarify the bottom line: gains in student performance
2. Deliver a complete package
3. Eliminate risk and surprise
4. Speak their language
5. Offer continual support

6. Emphasize teams

7. Find out what turns them on

8. Provide rewards and incentives

9. Don't rely on pioneers alone to plan for reluctants

(Mckenzie, 1999).

Where To Start

It can get so overwhelming, to say the least, all the computer software, hardware, etc...Just try to keep in mind, taking that first step is always the hardest. There is no blueprint for getting started but the following suggestions may serve as useful initial steps for introducing technology into your classroom.

1. Maintain modest goals

2. Have a backup plan

3. Ask for help

4. Learn from and with your students

(Adams and Burns, 1999)

A Survey

A survey was used to examine the use of technology in the fourth grade teachers curriculum to accommodate the ELA standards. The instrument contains 10 Likert-type questions along with asking for examples to be given if possible. The questions are designed to assess the use of technology, the availability of technology, and the knowledge of the ELA standards.

The sample of this study was the entire staff of fourth grade teachers in a public school in Orange County, New York. The population consisted of two male teachers and nine females. Of the eleven teachers, four of them have fewer than 6 years of experience, one has been teaching 6-10 years, three have been teaching 11-15 years, and three have been teaching 16 or more years.

In April 2002, a consent form and a survey were put into the school mailbox of all fourth-grade teachers at a public school in Orange County New York. The participants were asked to complete the consent form and survey and return it in the self-addressed envelope that the researcher provided.

Questions & Answers

One question the teachers were asked was if they used technology in their classrooms and how confident and prepared they felt using them. Those who had the most teaching experience were the least likely to use computers on a regular basis. They also felt that even with the training their district provided, they did not feel well prepared. As one teacher stated, "I have a couple of computers in my classroom and some software but I have no idea what to do with it!" Some of the reasons given as to why teachers do not use software were: not enough computers in the classroom, not enough time to prepare or experiment with the software, not enough training on the instructional software and /or on computers in general.

On the other hand, from the answers given, it seemed that the teachers that are relatively new in the education field had more confidence in their ability to create and use the technology to support the curriculum as well as using it to support the English Language Arts standards. They were more open and willing to experiment with the software. Both the "experienced" and "less experienced" did agree, however, that their district provided inadequate training.

The teachers were also asked if they knew and used computers to support the English Language Arts standards. All eleven teachers were familiar with the standards. One example of using the computer to support these standards was a poetry lesson. First the teacher read the children a poem, then the children had to write their own poem and read it to the class. The children typed and printed out their poems on the computer. The last step was to publish all the students' poems into a class book. Not only did the teacher meet the standards requirements; she also incorporated technology as well.

Similarly, another teacher had her students do an extended lesson on folktales. They were asked to explore folktales from around the world. The children were able to search various places to find a folktale that held interest or had meaning to them. Among those places were, the Internet, the library or simply talking to a family member. After they found and read the tale, they were asked to tell the folktale to the class. After each folktale, the students marked on the class map the country of origin of the tale.

The students discussed what they liked about each tale and made a class list of different story characteristics. When all the tales had been read, the class divided up into groups, read each other's tales, provided feedback and added suggestions. Children then typed their tale using the computer. As in the previous example, the end result was a collection of the folktales and illustrations bound in a class booklet.

When asked what suggestions they might offer in regards to the training the district provided, most of them felt on going support was needed. In other words, just going to training classes a few times a year is not enough. They wanted someone whom they could contact immediately if they needed guidance or technical support. The teachers also felt they were expected to donate too much of their own "free time" to learning the new tools. It was suggested that the school district provide more compensation for the teacher's time. Jamie McKenzie agrees. She writes, "Too little attention is paid to motivation. How can a district spend $20,000,000 on computers while begrudging teachers basic incentives to learn and use the new technologies?" (1999).

Conclusion

No one knows exactly what the future holds but there is little doubt that computer technology will be a large part of it. In order for it to be successfully infused into the classrooms, teachers must have the support of all the participants in the educational community. Districts must provide interesting software to enhance the educational goals. Teachers need to be encouraged to experiment with the vast amounts of tools that are available to them. Most importantly, teachers need to educate themselves on how to best use those tools to enhance teaching and learning. As Lynne Shrum points out, we must seize this moment to challenge ourselves, our students, our administrators, and policy-makers throughout the country to help all teachers make the best use of the technology tools available to them (2000).

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